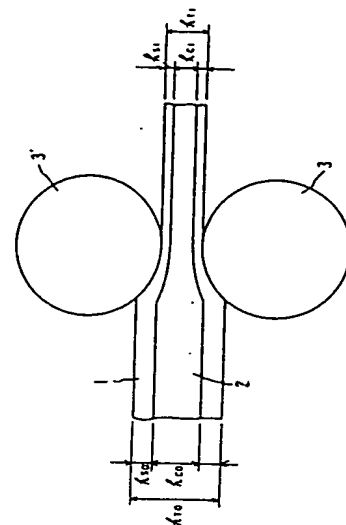


# (54) THREE-LAYERED POLYMER MATERIAL ROLLED PLATE AND PREPARATION THEREOF

(11) 3-159738 (A) (43) 9.7.1991 (19) JP  
 (21) Appl. No. 64-299833 (22) 20.11.1989  
 (71) NIPPON STEEL CORP (72) YASUHIRO HIGASHIDA(2)  
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**PURPOSE:** To obtain a polymer material rolled plate having a three-layered structure, excellent surface properties and high strength by constituting the rolled plate of an inner layer composed of a polymer material containing a specific amount of a reinforcing fiber and outer layers composed of a pure polymer material to stretch and orient both layers in one direction.

**CONSTITUTION:** A three-layered polymer sheet consisting of an inner layer 2 composed of a polymer material containing 40wt.% or less of a reinforcing fiber and outer layers 1 composed of a pure polymer material is stretched in one direction within a temp. region just under the melting points of the polymer materials. As one embodiment, when polypropylene 1 is used in the outer layers and polypropylene 2 containing 10wt.% of a glass fiber having a diameter of  $10 \times 100 \mu\text{m}$  is used in the inner layer and three layers are rolled, for example, in a stretching ratio  $\lambda$  of 3.9, the tensile strength in the rolling direction at this time is  $15.8 \text{ kgf/mm}^2$  and the strength in the rolling direction largely increases as compared with the tensile strength of  $4.1 \text{ kgf/mm}^2$  of the raw materials.



## (54) LAMINATED FILM

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 (71) TOYOBO CO LTD (72) KATSUHIKO NOSE(2)  
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**PURPOSE:** To obtain a fluoroplastic laminated film excellent in water and oil repellency, antistaining properties, non-tackiness, releasability, base material protective properties and humidity resistance and capable of being prepared inexpensively by laminating a composition based on a fluorine-containing polymer to a non-stretched or uniaxially stretched thermoplastic resin film and further stretching the laminate uniaxially or biaxially before heat-treating the same.

**CONSTITUTION:** A thermoplastic resin being a material for a base film is dissolved in a proper solvent and the solvent solution is formed into a film by a casting method while a fluoroplastic composition is laminated and bonded to the surface of the film as it is or after uniaxial stretching. In a method for forming the fluoroplastic composition layer on the base film, the fluoroplastic composition is formed into an emulsion or solvent solution which is, in turn, applied to the base film to be dried. The laminate thus obtained is further uniaxially or biaxially stretched to enhance the physical properties of the base film layer and subsequently heat-treated not only to remove the internal stress of the fluoroplastic layer but also to thermally fix the base film layer.